



**BUTTERFLY &
Other
INVERTEBRATES CLUB INC.
NEWSLETTER**

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AIMS OF ORGANISATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organise excursions around the theme of invertebrates e.g. butterflies, fireflies, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

NEWSLETTER DEADLINES

If you want to submit an item for publication the following deadlines apply:

March issue - January 21st;

June issue - April 21st;

September issue - July 21st;

December issue - October 21st

COMMITTEE MEETINGS

A quarterly meeting is now being scheduled in order to plan club activities and the newsletter. The next meeting is being held on Thursday, 22nd January, 1998, at Downfall Creek Bushland Centre, Rode Road, McDowall.



EDITORIAL

At a recent planning meeting for the Project to Conserve the Australian Fritillary Butterfly, a suggestion was made to develop a plan around three butterflies, the Chocolate Soldier, Sword Grass Brown and the Australian Fritillary because they occupy similar habitats. The Issues Paper will be reproduced in this and forthcoming newsletters.

We have received funding from the Gaming Machine Community Fund for our Swallowtail poster. We wish to thank the above Fund for this generous donation. The poster is now under preparation and will be available in the forthcoming months.

We have been doing more stalls to raise awareness of butterflies and their host plants. We have recently attended the Redlands Bushcare Fun Day and Eprapah Creek, Enviromania. Members are encouraged to participate in our Community Awareness program whenever they wish.

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EXCURSION REPORTS

EXCURSION REPORT : Helidon Hills, Sunday September 14

(The following is an extract from a QNC newsletter)

Members of QNC, Toowoomba Field Naturalist Club and Butterfly Club members met outside the Helidon Community Centre and optimistically set off northward along the dusty "17 mile" road, the western side of which had been burnt out two weeks previously by an extensive bushfire. After arriving at Dieter Schreiber's property in "Goldmine Road" we left the vehicles and walked towards the edge of an escarpment overlooking Alice Creek.

It was too early in the season for most cicadas, although one small undescribed *Pauropsalta* species was heard and a few collected for further study. Among the butterflies on the wing were the two skippers, *Trapezites phigalia* (a known sandstone/heath species whose larvae feed on species of *Lomandra*), and *Mesodina halyzia* (its larval host plant being *Patersonia sericea*). A small lycaenid butterfly, the Fringed Blue (*Neolucia agricola*), was present in good numbers, not surprisingly as its larval host plants include many of those aforementioned in the family Fabaceae. Another lycaenid, the Common Dusky Blue, (*Candalides hyacinthinus*) was seen flying near its larval host plant, the Devil's Twine Dodder (*Cassytha filiformis*). We were interested to know whether the inland species, *Candalides geminus*, occurred in the ranges and were excited to find yet another species was present, which on further study has turned out to be the more common and usually coastal *C. erinus*. *C. geminus* was located a few weeks later further west in the Gurulmundi area during the Columboola camp.

Of the Whites and Yellows (Pierids), the elusive Macleay's Grass Yellow (*Eurema herla*), with its salmon pink underside, was noted. The only known larval host plant, *Senna mimosoides*, does not appear to have been recorded from this area, so the butterfly may have migrated in, or alternatively this host plant or another remains to be discovered.

Other notable butterflies seen were Yellow Spot Blue (*Candalides xanthospilos*), Fiery Jewel (*Hypochrysops ignitus*), Common

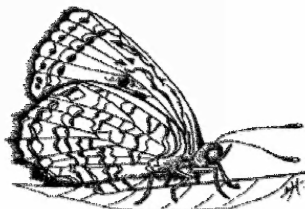
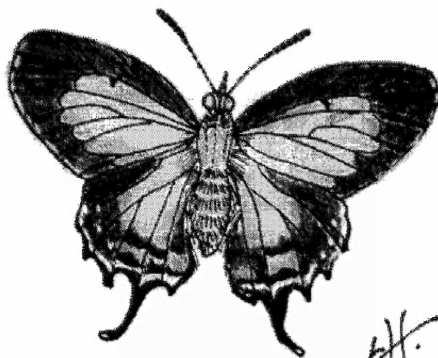


Fig. 1 - Jewel





Common Imperial Blue

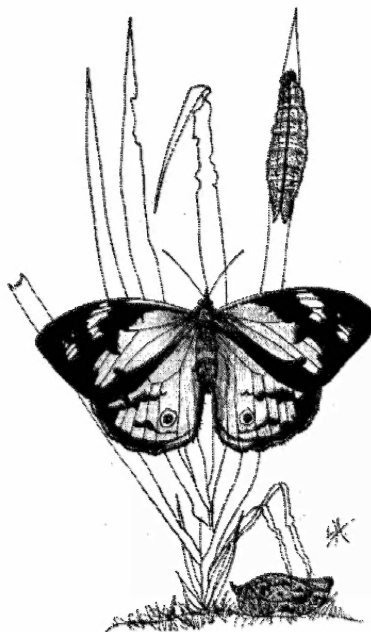
The following is an extract from JMoss' report, on the 18th October. Belmont Hills joint excursion with the Queensland Naturalists' Club, as it appeared in the QNC news:

"At this point we came across three very interesting butterflies. The first, the "Common Red-Eye (*Caetocneme beata*), one of the "Flats" in the Skipper family, which is rarely seen, and then usually only at dusk, was quite a find. We had obviously disturbed it in its daytime concealment, and it flew a short distance and perched upside down, with wings outstretched (as is usual for this species) under a Lantana leaf. Most were able to glimpse its bright orange-red eyes before it took off again. It was no surprise that it occurs here, as its larval hostplant Bolly Gum (*Neolitsea dealbata*) was quite common in this area.

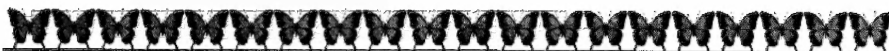
Next, a male Hairy Line-blue (*Erysichton lineata*) was seen alighting on the underside of a Croton leaf. Some of its larval hostplants *Macadamia integrifolia*, *Cupaniopsis anacardiodes* or Tuckeroo, and (appropriately) *Alectryon tomentosus* or Hairy Alectryon were growing nearby.

Imperial Blue (*Jalmenus evagoras*), Dark Purple Azure (*Ogyris abrota*),

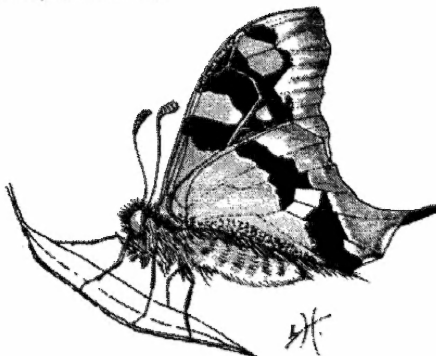
Orange Ringlet (*Hypocysta adiante*), Common Brown Ringlet (*Hypocysta metirius*), Evening Brown (*Melanitis leda*), Common Brown (*Heteronympha merope*) and Common Jezabels (*Delias nigrina*).



Sword Grass Brown



Finally, a male *Trapeyites praxedes* skipper, recently emerged and resplendent with silver spotting on its underside, was seen perched on foliage beside the track, and not far from its local hostplant Matrush (*Lomandra longifolia*).



On an earlier recce to this area, and earlier in the morning, several Macleay Swallowtail butterflies (*Graphium macleayi*) were seen flying overhead and ovipositing on both Camphor Laurel and Jackwood (*Cryptocarya glaucescens*) trees. However, the only butterfly of note found on this occasion was the uncommon Swamp Darer (*Arrhenes marnas affinis*), which was seen flying amongst and ovipositing on a creekside native grass."

REPORTS

ANTS - A talk to the Club by Chris Ploughman in August 1997

Helen has asked me to come tonight and talk about ants. I imagine that most if not all of you will be familiar with ants as the protectors and sometimes the predators of butterfly larvae and pupae. I had a quick whip through Common and Waterhouse and found that there are quite a number of genera of butterflies where the larvae and pupae are attended by ants. The main ant genera listed were *Iridomyrmex*, *Crematogaster*, *Camponotus* with mention of the *Paratrechina*, *Notoncus*. Ants have been recorded attending larvae as they feed, sometimes ants take the larvae back to their nests during the times when they are not feeding. In some species ants collect up butterfly eggs and take them into the nest and feed them. The larvae as they grow take to killing and eating ant larvae and pupae. And I am sure that everyone is aware of the ant plant which serves as a home for ants and butterflies, with the ant protecting the plant and the butterflies. And of course ants do feature quite a lot in the ads for pesticides for their troublesome habits of digging up the lawn, biting people at picnics and rushing all over the kitchen.



I am interested in ants because they are quite amazing. How many creatures do you know who can walk up walls and across ceilings with ease, carry their own weight and more about without even apparently a thought, communicate so richly in the various chemical hues of their many glandular secretions, make their own antibiotics, live a social and communal life in which the sisterhood appears to reign supreme - this and much more. I am also interested in ants because I work as an ecologist and observing ants is so instructive.

So I thought that I might talk a bit about the sort of work I do and how ants feature.

Interestingly my most mysterious consulting job was concerned with ants. A geologist rang me one day saying he had clients who wished to remain nameless and he couldn't exactly say where they lived, other than to say they lived in some reasonably arid place. Then he told me this. Members of his client's family had observed ants which had built a covered runway, it ran out of the landscape and down into some rocks, quite a long way down, in fact they couldn't see where the tracks went. But what interested them the most was that the runway seemed to look as though it was made of some sort of petroleum derivative. Was there an oil deposit under these rocks that the ants were visiting?? So they called in the geologist. The material in the runway was chemically analyzed and lo and behold it was a sort of light petroleum compound. How exciting the potential of oil. Hence the secrecy. The geologist was confused though. He said to me "It's not the right geological configuration for there to be oil". What a mystery. So he said would I look into all this, no I couldn't come and look - very hush hush. After some really tactful questions I decided that the place must have been in spinifex country. And I knew that people often used petroleum products for medicinal purposes so I rang up my anthropological friend who was then working in the NT and I rang up someone from CSIRO is Alice Springs - someone I had spoken to yet never met. And this is what I learnt. The ants use one of the species of spinifex, which contains a light petroleum set of molecules which the ants used to make runways and the like. Aboriginal people did use these materials for medicinal purposes and if set alight the runway would burn quite freely. The ants had made the runway back from the spinifex to their nest and not the other way around. The oil well was a lovely idea but actually devising a process of using spinifex to make petroleum products may be a development of the future.

The work I now do as a consultant is not as mysterious or exciting. Although in some ways it is quite challenging. One line of my work is to look at rehabilitation on mined land. The questions are about how effective the rehabilitation is. This is important for mining companies so that they are able to relinquish these mined lands with government permission. Plants are grown in the rehabilitated landscape and what the



government and the companies want to know is - is the replaced soil going to hold with a minimum of erosion, are the plants growing and the final question what ecological processes are taking place - are these processes the sorts of processes we would expect to find in a healthy bit of equivalent unmined local habitat. And of course the favourite catch cry - is this habitat going to be sustainable. I will translate - will the habitat be able to replace itself. And the kinds of processes which are associated with sustainability include:

- (i) nutrient cycling - is dead organic matter such as leaves, sticks and the like being broken down and are the nutrients released being picked up by living things and being used to grow more matter;
- (ii) does the reconstructed landscape appear to be taking on the characteristics of similar sorts of habitat in unmined areas. For example if the end result aspired to is an open woodland, does the habitat look like the unmined open woodland, are the number of species similar, are there similar suites of plants and animals successfully colonising the rehabilitated area.

Ants are considered to be a useful taxonomic group to evaluate the state of any rehabilitation. And let me tell you why. Ants are small and are able to respond to smaller scale changes in the landscape. As well they are able to disperse and colonise newly rehabilitated mined land. The queen ant mates with the male ants, usually once a year at the same time as other members of the species. In this way the aerial courtship is synchronised.

Ant colonies have a number of different types of forms. There are males and the queens and workers. Queens and workers have the female complement of chromosomes. However during development only part of the potential female form develops. This difference in development depends on the sort of food given to the larvae, temperature, pheromones (this can depend on the number of workers, the number of queens) or nutrients stored in the eggs. It seems that the worker is an individual diverted from the normal female (ie queen) by having part of its adult system shut down. We can say that the developing larvae can be divided into a dorsal set containing the wing buds gonad rudiments, and ocellar buds and a ventral set with the leg buds, mouth part buds and central nervous system. The queen has the full development of all these parts, in the larvae destined to become a worker the dorsal growth stops and only the ventral parts develop. However in some species the development of the dorsal part does not completely shut down. So the queen is usually winged, has a well developed pterothorax and flight muscles, large compound eyes three ocelli, usually larger than the workers of the same species with a relatively bulky gaster containing well developed ovaries and fat body. Workers are wingless, smaller eyes than queen, ocelli reduced or lacking, mouthparts and sting are usually the same and function similarly in both the queen and worker. Soldiers when present



are larger with disproportionately large heads. Workers, minors and workers may be connected in a series of changing sizes or may be discrete discontinuities. The elaboration of the workers in the ants is probably due to the fact that they are wingless and therefore have been able to elaborate their form without the problems of remaining aerodynamically OK.

The queens once mated look for a place to start their new nest, to begin their colony. The males die. They have little in reserve and before the nuptial flight they generally get rid of any stomach contents and fill themselves with air and fly off. So ant nests potentially can be started in many places. Many of course will not succeed. In disturbed places like your lawn and more especially so rehabilitated landscapes the conditions are so difficult that usually only a few generalists species will be able to set up house. So we usually find large numbers of a few species. As the site ages and becomes more structurally and floristically diverse the number of species would be expected to increase.

One of the most common species that I have found on rehabilitated land is what we locally call the green ant (*Rhytidoponera (metellica) complex*). I am sure that most of you will be familiar with this species. It looks shiny green with a sheen and it brings dirt to the surface of lawns and stings people. This ant is a ponerine. Another common genus is the *Iridomyrmex* with the common meat ant *Iridomyrmex purpureus* (complex). I imagine that many of you will be familiar with this species. They have large nests out in the open with lots of holes and covered with gravel.

(TO BE CONTINUED)

REPORT ON DON SANDS' TALK TO THE QNC on Monday 16 June on "Butterfly/Host Plant Interaction and their Conservation"

Don commenced the talk with some general information about conservation of threatened species. He made some relevant points which are worth listing viz.:-

- Rare doesn't necessarily mean threatened. Some species are naturally rare due to natural processes and the biology peculiar to them.
- Conservation is not necessarily a passive situation like just declaring a species protected or gazetting a new National Park. The Richmond Birdwing Recovery Plan of the Double Helix Club is an example of an active process.
- It is a mistake to regard butterfly conservation as per vertebrate conservation - there are many different considerations.
- Threatening processes can affect both rare and common taxa. These include -
 1. Loss of foodplant due to clearing, weed infestation, fire.
 2. Genetic isolation which can result in in-breeding depression.
 3. Changes to drainage patterns eg. sand mining, sugar cane

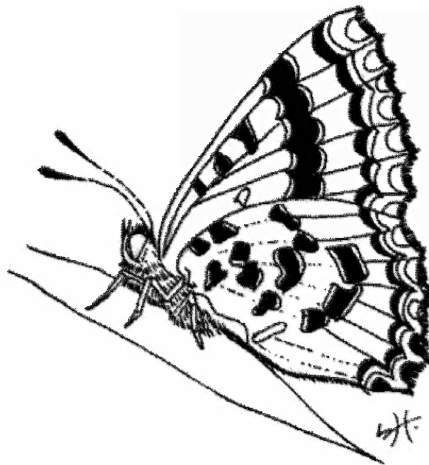


More specifically clearing hilltops for water towers and T.V. transmitters prevents butterfly "hilltopping" activity which may preclude successful mating processes.

- The reverse situation whereby "butterflies can be indicators of threatened plant communities" should be taken into account.
- Furthermore butterflies could also be indicators of climate change.
- Recovery actions should include amateur entomologists, butterfly collectors, naturalists and botanists. Schools and tertiary institutions could also be involved. Federal, State and local government should encourage, assist and co-ordinate where necessary.

Don then went on to give specific examples of butterflies threatened by certain processes viz.:-

- The Apollo Jewel is common but now threatened at Cardwell by the Keith Williams and other coastal developments, because its larvae live in ant-plants, which grow only in branches of the coastal *Melaleuca* paperbarks, which are being cleared.
- In a similar way in the Moreton Bay area, the Illidge's Ant Blue



Illidge's Ant Blue

(*Acrodipsas illigaei*) is threatened by the clearing of mangroves.

- The Darling Downs Jewel (*Hypocrysops piceatus*) is a rare butterfly now probably because of past clearing practices, whereby mature hostplant "Bulloak" (*Allocasuarina leuhmannii*) trees were

removed from pastures and crop areas. Restricted to Leyburn and Millmerran it is now threatened by a proposed road widening at Leyburn.



Darling Downs Jewel



- A recently discovered rare species of grassdart (*Ocybadistes knightorum*) has a very limited distribution in the Coffs Harbour area because its only hostplant, a rare grass *Alexfloydia repens* only grows on peat deposits which are themselves very limited in distribution.
- The Australian Fritillary (*Argyreus hyperbius*) butterfly is rare and threatened because of its specific requirements. The only known hostplant (Arrowhead Violet) which, although fairly widely distributed along the coast and ranges, appears only to support the butterfly where it grows in high water table areas. Most of these have been cleared for housing and commercial development and sugar cane farming. A recovery program would have to consider the appropriate habitat for replanting and restocking.
- The Queen Alexandra Birdwing from P.N.G. is a highly desirable ornamental species and the world's largest butterfly. A different mode of conservation practices, wherein local communities have set up butterfly farms, ensures its survival and allows a viable trade in this species to continue.

His talk was illustrated by excellent slides of all the above and several other species both larvae and adults. This included slides of larvae and pupae illustrating the differences between Cairns and Richmond Birdwings. He then handed over to Sue Scott, Information Officer, CSIRO's Double Helix Club. Sue outlined the goals and activities of the club in assisting the recovery of the Richmond Birdwing.

John Moss

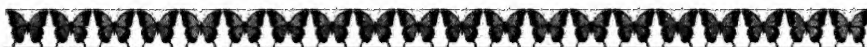
Redlands Bushcare Fun Day

Our club was invited by the Redlands Shire Council to conduct a stall and information sessions for the Bushcare volunteers. This was held on Sunday, 20th July. The day was very successful with thirty people or more attending our slide presentations. Lots of interest was also shown in the plants we had available for sale. These had been selected as being specifically native to the Redlands area.

Thanks to John Moss, Daphne Bowden and Frank Jordan for helping make the afternoon a success. Also thanks to the Redlands Shire for the opportunity to present our information.

EnviroMania

The Erapah Creek Catchment Landcare Association (ECCLA Inc) invited our club to hold an information stall at EnviroMania, held 17th August.



The occasion afforded our club an opportunity to undertake some community education about butterfly lifecycles.

Thanks goes to Daphne Bowden and Kay McMahon for helping to staff the stall and also to the ECCLA for this opportunity

Helen Schwencke

Australian Fritillary Project

At our club planning meeting oheld in June we decided to develop an issues paper in order to further advance the conservation of the Australian Fritillary (*Argyreus hyperbius*) butterfly. We circulated this paper to a range of people with a stake in the issues. The paper formed the basis for a discussion with representatives from the three levels of government, other environment groups, and community members which was held on the 24th July. The issues paper is reproduced in this newsletter.

A suggested outcome from the discussion was that we consider nominating the Australian Fritillary as a nationally endangered species. We also need to incorporate the Swordgrass Brown (*Tisiphone abeona*), the Chocolate Soldier(*Junonia hedonia*) and the painted skipper (*Hesperilla picta*) butterflies and their host plants as species which share the same types of habitat. The Swordgrass Brown sub-species which occurred in south-east Queensland is now extinct, a closely related sub-species still occurs in NSW. The Chocolate Soldier once ranged as far south as Southport. It has lost a significant portion of its range through the clearing of habitat, as has the Painted Skipper.

It was also recommended that the Butterfly Club pursue the issue and that a Recovery Plan be commenced. A follow up meeting was held on the 9th October. This meeting looked at some initial steps which could be taken to start the recovery planning process. In the meantime we have applied to the Brisbane City Council for an environment grant to undertake some of the mapping work within the Brisbane Authority area, and to produce an education kit and display materials. Future meetings will start working on the recovery planning guidelines.

Helen Schwencke

CREATURE NOTES

Creature Note #6

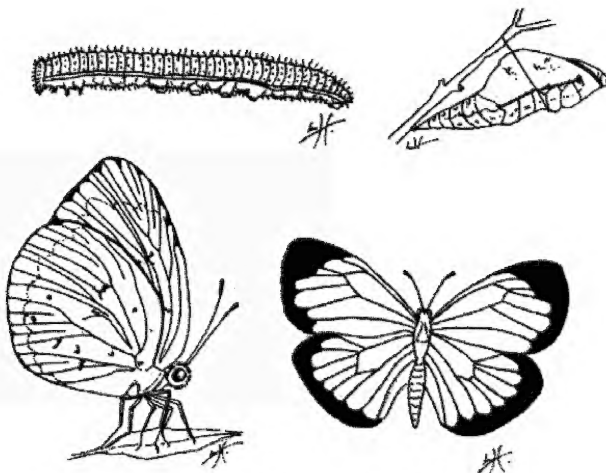
A host plant for the Common Grass Yellow (*Eurema hecabe phoebus*).

On a visit to Jim Johnston's garden on the weekend of 9/10 August a small number of Common Grass Yellow butterflies were noted to be flying around a small acacia. This 1 m. high ferny leaved *Acacia deanii* was noted to contain about a dozen pupae of this



butterfly which are known to feed on various plants in the families that include Breynias, Acacias, Albizias, Indigoferas, Sesbanias and Cassias.

It was notable that the males were circling the host plant - were they awaiting the emergence of females still in pupa on the tree? Although there was much activity (of dogs and humans) in the garden, this did not appear to inhibit their dedication to the plant. As far as we are aware this is the first time this Acacia has been recorded as a host plant for the butterfly.

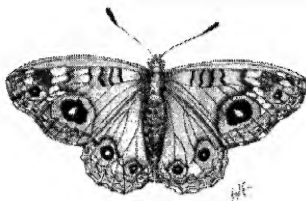


LETTERS

Lois Hughes writes

Meadow Argus

Our paddocks are dotted with the perennial Common Verbena (*Verbena officinalis*), a rather stalky weed with tiny lavender flowers. I noticed black, spiny caterpillars on most of the plants and



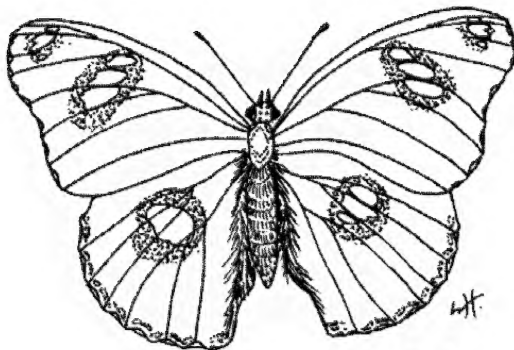
Meadow Argus



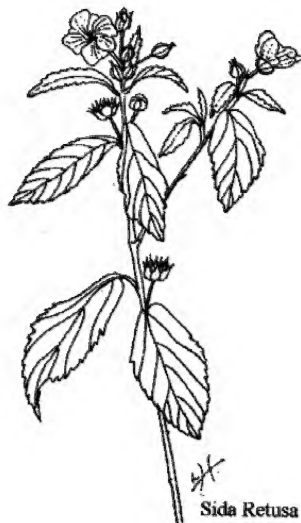
Common Verbena



brought several inside. They didn't have huge appetites and spent a lot of time just resting. Sadly, although they pupated, none of the butterflies emerged because they had the tachnid fly larva inside them. I had ected them as large caterpillars. I must try again with eggs or very small caterpillars to avoid infestation. These caterpillars have a really strange habit of wandering away from their host plant and just sitting on the ground, metres away from any sort of shelter. As I was filling a horse trough with water I noticed a Meadow Argus caterpillar struggling to free itself from a red-back spiders grip. I released it and killed the spider. It was a timely warning not to stick my fingers up the plug hole from beneath, as had been my practice (I've replaced the plugs with more easily moved ones!) We had never encountered red-backs here before. Obviously many caterpillars successfully pupated as it wasn't unusual to encounter up to four males fighting territorial battles. These butterflies spend considerable time on the ground, orange/brown wings open, displaying beautiful blue/black eyespots as they bask in the sun. We also have Purple Top (*Verbena bonariensis*) a weed very similar to Common Verbena in leaf shape and growth habit, with the same square stems and small purple flowers, but its leaves and stems are hairy and it is an annual. I haven't found any Meadow Argus caterpillars on it although it is listed as a host plant. I have also been given another host plant, Carpet Weed or Fog Fruit (*Phyla nodiflora*) a ground cover with pretty white flowers, which in true weed form is spreading quickly. During the migration of the Capar White butterflies last November, I noticed many alighted on the Common Verbena flowers for a quick sip of nectar, before moving on.



Common Eggfly



Sida Retusa



Common Eggfly

Sida Retusa (*Sida rhombifolia*) is a common weed of pasture, but we have always let it grow because it has high nutritive value and is very palatable to livestock. It is also very useful in the treatment of diarrhoea, both human and animal, with a few washed leaves chewed often being sufficient to settle the condition.

Now I find it is also host to the Common Eggfly. I found a large black spiny caterpillar on a plant and brought it inside. It pupated shortly afterwards and produced a butterfly which I never actually saw!! I was so hoping it was a male with the gorgeous blue/purple

eyespot, brilliantly set in black. A female with its white and orange flushes on brown would have been most acceptable too, either would have inspired me to paint them. It must have flown up underneath the blind and escaped as I opened the windows. Oh well, you can't win them all!!!



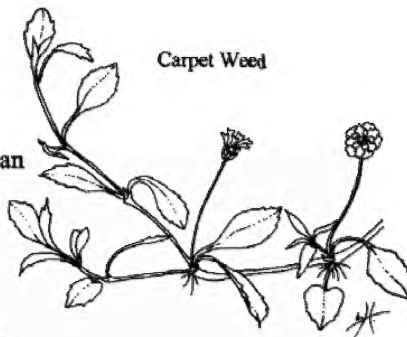
Purple Top

Lois

A short note from Rob MacSloy

As recently published in the Journal of The Australian Entomological Society a provisional list of common names for Australian butterflies has been presented and comments requested.

If you require a copy of this provisional list please phone me on (W)3808 2477; (H)3824 4348 and I will send you a copy. This is your chance to unmaligned the poor "Dingy Swallowtail".



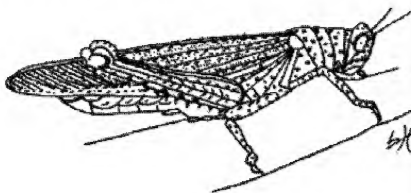
Carpet Weed



TEACHING TIPS

KEEPING AND REARING GRASSHOPPERS

Rearing grasshoppers can be useful for observing life cycles and metamorphosis. The following notes apply to several species of grasshoppers and locusts, particularly the Hedge Grasshopper (*Valanga irregularis*), the Migratory Locust (*Locusta migratoria*) and the Spur Throated locust (*Nomadacris guttulosa*). The latter is not as successful in captivity as the other two.



The Hedge Grasshopper is common in suburban gardens and feeds on many kinds of shrubs including Hibiscus, Bauhinia and sometimes palms. Adults over winter and begin egg laying as the days warm, usually early in October. The eggs hatch in six to eight weeks and the nymphs develop through to adults by March. Adults can be captured early in the season and placed in a cage of about 400 mm x 400 mm x 500 mm high and provided with cuttings of the food plant held in water and replaced as necessary. The food plant can be one of the plants mentioned above or some of the plant on which you found them feeding. Also provide a container of moist soil tamped hard in which the grasshoppers can lay their eggs. A container such as a 2 litre ice cream container is suitable. Nymphs that emerge from the eggs will feed and moult their way to becoming adults over the following eight to ten weeks. Alternatively, the wingless nymphs can be collected from the garden and reared through to adults.

Migratory Locusts are easy to culture in captivity if a source of eggs or several pairs of adults can be found. Some universities and museums have cultures of these insects. I reared these locusts for over three years continuously beginning with three pairs of adults. As these locusts like warmth it is necessary to provide a solid cage with a clear PVC front and a few gauze covered ventilation holes. Warmth can be provided by an electric light bulb of about 25 or 40 watt depending on the season. A temperature of around 32deg C is a good average temp for all stages of development. These locusts feed on grasses and can be supplied with wheat seedling grown for the purpose or other grasses gathered from the garden. For these locusts to lay their eggs cups of moist sand needs to be provided. Sand (without the aggregate) used for cementing is very suitable. It should be sterilised by baking in an oven at 160deg. C for about two hours, cooled and moistened at the rate of about 30 ml of water to 200 ml of sand. I have found plastic disposable coffee cups are suitable. Pack the sand tightly into the cup and place it in the cage with the adults. Once egg laying has occurred (this could



take a few days) remove the cup from the cage, secure a small plastic bag over the cup with a rubber band (as you would to retain moisture when striking cuttings) and place the "eggcup" back in the cage. In eleven to twenty days the young nymphs should have hatched (15 to 50+ of them !) and the bag should be removed to allow the youngsters to feed. Over the next four to six weeks they will eat and moult their way to adulthood. Spur-throated locusts have similar requirements to the Migratory locusts but are not as successful in captivity.

These notes are simplified somewhat as there are many factors of temperature, humidity and lighting that affect egg laying, development and the long term viability of a locust culture. I am happy to provide more detailed information including cage construction, for those requiring additional information. You can phone me on (076) 981 941 or write to me at M/S 1076, Crows Nest Qld 4355. Inquiries about my school program "Amazing Insects" can also be directed to this number and address.

WORLD WIDE WEB SITES TO WATCH

The Richmond Birdwing has a web site dedicated to its conservation. It can be found at <http://www.nor.com.au/environment/species/birdwing/>

This is a New South Wales site which describes the butterfly, its food source and the conservation issues. Additional pages cover a range of topics including a listing of a number of host plants for other butterflies, some general information about gardening for butterflies, NSW retail nurseries which sell Birdwing vines, and information on caring for Birdwing vines.

The site contains some attractive images of Birdwings and is well worth the visit.

AUSTRALIAN FRITILLARY - ISSUES PAPER

The *Argyreus* Genus

Butterflies in this genus are distributed worldwide, however, only one species occurs in Australia. This species is "widely distributed in the Oriental region, as well as New Guinea". The sub-species occurring in Australia is *Argyreus hyperbius inconstans*. It was described by Butler in 1873.



Distribution of the Australian sub-species

The Australian Fritillary occurred from Port Macquarie to Gympie. According to Dexter, Dunn & Kitching (1993)

“of the 23 recorded localities only four have extant populations (D.P. Sands pers. Comm.). The historic sites at Glenugie Creek near Grafton (1895), Ballina (1898), Billinudgel (1910), Lauderdaled (1911) and Indooroopilly (1916) among others were some of the first to be lost in the almost catastrophic trend which has followed, resulting in over 80 percent range contraction.”

No mapping exercise for the host has been identified. A search of Herbarium records and a literature search would provide some of this information and identify some of the gaps in the published information. A mapping exercise would be part of the conservation planning effort for this butterfly..

Dexter, Dunn and Kitching (1993) citing Lambkin and Lambkin (1977) state that the “adults are sometimes locally abundant in their swampy habitat”. Also from the same report Dunn & Dunn (1991) state that “adults can be expected throughout the year although there is presently no evidence of the adult presence in September.

***Distribution records to be supplied by Kelvyn Dunn up to 1990 from records held in a number of collections. *** Few official records have occurred since.

NatureSearch data up to 1995 records the species at Ningi in the Caboolture Shire. In 1983 it was recorded in February, March and May, with less than 5 individuals per sighting. The February sighting yielded specimens which were sent to the Queensland Museum. One further sighting at the same location was made in November 1992.

One person living near a site from which a specimen was recorded in 1992, in the Caboolture area, reported (to a Club member in 1994) that the butterfly was breeding in their backyard on violets which they had introduced.

Other locations in south-east Queensland which were known to butterfly enthusiasts include one approx. 5 miles south of Gympie, and one near Coolumb. In recent years visits to these sites have yielded no reported sightings.

Natural cycling and the firing of grasses play a role in the abundance of this butterfly. (Don Sands address to the Queensland Naturalists Club on June 16th 1997.)



Habitat

Further research is needed into the habitat of the Fritillary. For example, the New Guinea sub-species occurs at high altitudes (Don Sands address to the QNC June 1997), but it is considered a coastal butterfly in eastern Australia.

Dexter, Dunn and Kitching (1993) citing Barrett & Burns (1951) and McCubbin (1971) state that "most specimens have been collected from river estuaries or swampy coastal areas at or near sea level". According to Sands (Don Sands address to QNC) it occurs in habitats where the water table is high and the violets occur in close proximity to Casuarinas and Melaleucas.

There are records of the butterfly being collected at a higher altitude at Dorrigo in New South Wales. There are some questions about the actual collection site of this specimen, since all other specimens are considered to have been taken in coastal lowlands. However, there is also a record of it being collected at Peachester in Queensland in 1977. Does this butterfly have a mountain/lowlands dispersal cycle like the Richmond birdwing? The violet occurs in the coastal lowlands and also in the hills of the Great Dividing Range.

Lifecycle of butterfly and its requirements

The Australian Fritillary normally only feeds on *Viola betonicifolia*, however "final instar larvae will accept *Viola hederacea* and *V. ororata* and earlier instars also accept at least *V. hederacea*, but the other has not been tested" (Johnson and Johnson, 1984 cited by Dexter, Dunn & Kitching 1993). The female



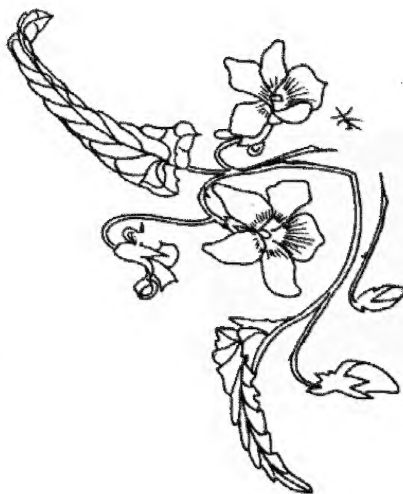
will only lay on the host or leaves of plants over which the host is growing (Johnson and Johnson, 1984).

Johnson & Johnson (1984) (cited by Dexter, Dunn & Kitching 1993) observed that the larvae "leave the host at sunset each night and return at sunrise to recommence feeding" while Common & Waterhouse (1981, p.388) state that "they apparently feed at night, sheltering away from the small violet plants during the day".

Johnson and Johnson (1984) observed that the larval stage has a "duration of four instars over 23 days, and a brief pupal duration of only four days". These observations were made on the progeny of a female collected in the wild at Condong NSW and raised in captivity. Common and Waterhouse (1981) state that the "pupal duration is seven to nine days".

Ecology of food plant

Viola betonicifolia occurs in the coastal lowlands and in the coastal ranges. At present no research into the ecology of the violet or its associations with other plants has been identified. No systematic studies about the habitats containing the violet which are preferred by the Australian Fritillary have been located, although some observations are noted in the sections above. A literature search is required to determine what information has been published in this regard.



Research into a range of questions about the host plant could be of assistance to any conservation plan. These questions include:

- what pollinates the violets
- how are seeds dispersed over wide areas
- what is the effect of climate variability on the abundance of the violet and on the abundance of the butterfly
- some violet stands occur in pasture, and others in pine plantations - are these suitable butterfly habitat?



Threatening processes

A number of processes are causing the Australian Fritillary to become endangered. Habitat destruction, such as the loss of Melaleuca woodlands, weed invasion and fragmentation of habitat affect the abundance of the host plant and the butterfly. Land use management such as burning regimes may also have an impact. More research is needed on threatening processes.

Some Definitions

Threatened and endangered species fall into the following categories (VanderGragt, 1996, p.6)

- presumed extinct - the species has definitely not been seen in the wild for the last 50 years
- endangered - the species is in immediate danger of extinction if the threats continue
- vulnerable - the species will soon become endangered if the threats continue
- rare - the species occurs in small numbers and is presumed not at risk

A recovery plan is defined by the Nature Conservation (Wildlife) Regulations 1994 as "a document stating the research and management action necessary to stop the decline, support the recovery and enhance the chance of long-term survival in the wild, of a stated species or community of protected wildlife. The Regulations go on to note that "recovery plans for endangered wildlife may be a plan prepared or adopted by the Commonwealth under the Endangered Species Protection Act 1992 (Cwlth).

The Legal Status of the Australian Fritillary

In Queensland two main Acts affect threatened species. These are the Nature Conservation Act 1992 (for Queensland) and the Commonwealth Endangered Species Protection Act 1992.

Under the Nature Conservation (Wildlife) Regulation 1994 the Australian Fritillary is listed as endangered in Queensland.

Under Regulation 16 "the proposed management intent for endangered wildlife is as follows -

- (a) to establish a database of records and information about the wildlife;
- (b) as a priority, to put into effect recovery plans or conservation plans for the



- wildlife and its habitat;
- (c) to seek funding to help achieve the objectives of recovery plans and conservation plans;
- (d) to take action to ensure viable populations of the wildlife in the wild are preserved or re-established;
- (e) to establish formal communications with the Commonwealth and other State agencies about the ongoing management and conservation status of endangered wildlife in Australia;
- (f) to start education programs for the community and managers of public land on extinction processes and threatened species conservation and habitat;
- (g) to regularly monitor and review the status of endangered wildlife and its habitat;
- (h) to encourage scientific research and inventory programs likely to contribute to an understanding of endangered wildlife and its habitat and management requirements;
- (i) to recognise that the habitat of endangered wildlife is like to be a critical habitat or area of major interest;
- (j) to monitor and review the adequacy of environmental impact assessment procedures to ensure that they take into account the need to accurately assess the extent of the impact on endangered wildlife and develop effective mitigation measures.”

Under Regulation 17 “the following are the principles for the taking and use of endangered wildlife under a license, permit or other authority under the Act -

- (a) taking and use of the wildlife for exhibition purposes may be permitted only -
 - (i) if it is for a captive breeding program to be conducted under a recovery plan approved by the chief executive; or
 - (ii) under a conservation plan;
- (b) taking and use of the wildlife for another purpose may be permitted only if -
 - (i) it is consistent with the management principles for the wildlife (as specified by section 77 of the Nature Conservation Act); and
 - (ii) it will not reduce the ability of the wildlife’s population to expand.

Under these regulations the eggs and larvae are protected under the same conditions as the adults. That is they can only be collected by permit under the conditions described above. The movement of eggs and larvae could be covered by an approved recovery plan. This would allow participants working on the plan to undertake activities defined by the plan once it was approved.



The Australian Fritillary is currently not listed under the Commonwealth Endangered Species Act.

The status of the Fritillary under NSW legislation has not been followed up at the time of writing.

Government frameworks for conservation

The National Strategy for the Conservation of Australia's Biological Diversity is a document generated by the InterGovernmental Agreement on the Environment. Queensland is a signatory to both these agreements.

Objective 1.6 (p.12) is stated as

“Ensure the maintenance of, and where necessary strengthen, existing arrangements to conserve Australia's native wildlife”.

Actions under this objective include

- increase the level of knowledge about and undertake appropriate conservation action for less well known groups such as invertebrates, and others.

Objective 1.7 (p.13) is stated as

“Enable Australia's species and ecological communities threatened with extinction to survive and thrive in their natural habitats and to retain their genetic diversity and potential for evolutionary development, and prevent additional species and ecological communities from becoming threatened.”

Actions under this objective include establishing

- recovery plans for endangered and vulnerable species and communities, covering the cross-jurisdictional problems; and
- plans for mitigating or eliminating the effects of threatening processes

One of the principles adopted as a basis for the Strategy's objectives and actions is that

- lack of full knowledge should not be an excuse for postponing action to conserve biological diversity.



Through these agreements the States, Territories and Commonwealth agree to:

- complete, adopt, and implement the national threatened species strategy
 - identify threatened species and threatening processes
 - develop and implement recovery plans for threatened species
 - develop and implement plans for removing or stopping threatening processes
- (VanderGragt, 1996, p.25)

(TO BE CONTINUED)

OTHER GROUPS ACTIVITIES

The QNC have booked the Beerwah Field Study Centre for this long weekend to which we have also been invited. It is proposed to revisit, at leisure, the butterfly habitats on the Stanley and Mooloola Rivers that we visited on the "Richmond Birdwing Outing" in February 1997. As well, we hope to do some naturalising in the wallum and perhaps, if convenient see June Wimberley's lovely garden again. Also popular last time was the rainforest gully at Arthur and Narelle Powter's, where we saw the Purple Crow butterflies and the eggs, larvae, pupae and adults of the

Richmond Birdwing. Hopefully we will be able to arrange this again. Bob Millar has agreed to lead us again, and no doubt at some stage over the weekend there will be time for a cuppa with Bob, Judy and the boys in their garden at Landsborough.



One of the main objectives of this weekend is to find hostplants, and hopefully livestock, of the four threatened butterflies that are the subject of our special recovery plan (see details elsewhere in this newsletter). We need to identify existing sites and potential areas where the butterflies either occur or could be reintroduced to.

Good quality accommodation at the Centre (run by the Australian Marine Conservation Society) is quite cheap and as there is a limit (no limit for campers) it will be on a first come basis. Please register with John Moss on 3245 2997. Those who wish to make day trips only are welcome to do so - John will have further details of itinerary and facilities.



LIBRARY BOOKS FOR LOAN

The following books are currently available for loan at meetings:-

Australia's Butterflies, by Peter Wilson

Butterfly Magic, by Helen Schwencke and Frank Jordan

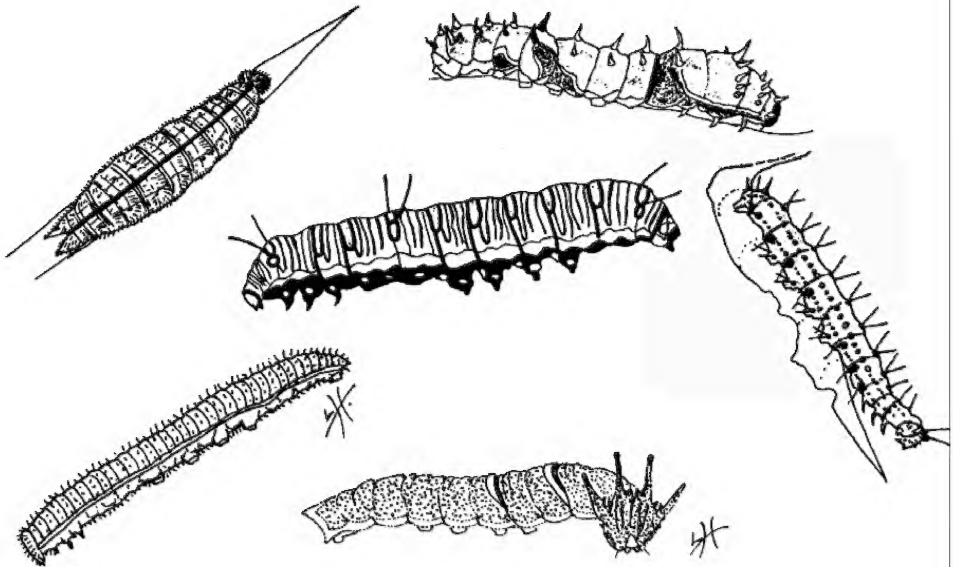
Australian Cicadas, by Max Moulds

Butterflies of Australia, by Common and Waterhouse, 1981

Butterfly Watching, by Paul Whalley

ADS AND EXCHANGES

Sometimes you may have an oversupply of legally obtained caterpillars of non restricted species and your food supply will not hold out. If this happens, contact Rob MacSloy - 07 3824 4348 - who operates the Register of Host Plants. He can put you in touch with prospective "foster parents". Have YOU advised Rob of the host plants you have available?



Notice of

Annual General Meeting

and

Election of Office Bearers

Thursday, 22nd January, 1998

7.30 pm

at

Downfall Creek Bushland Centre,
Rode Road, McDowall

Proxy forms are available upon request. The Annual General Meeting will be followed by a short planning meeting.



BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

- When:** Monday, 12th January, 1998, 7.00 for 7.30 pm.
What: Insect Migration with Special Reference to Butterflies and Moths
an address by Prof. Jeremy McNeill, Laval University, Quebec
Where: Queensland Museum Auditorium
After hours entry can be gained through the Dinosaur Garden on
Grey Street. This entry will be attended for a short time after
7.30 pm.
Contact: Register with John Moss 3245 2997
Details: This address jointly sponsored by the Butterfly Club, Queensland
Naturalists Club and the Entomological Society of Queensland.
-
- When:** Thursday, 22nd January, 1998
What: Show and Tell and Annual General Meeting, all members welcome
Where: Downfall Creek Bushland Centre, Rode Road, McDowall
Bring: Butterflies and other invertebrates you want to show, swap or
perhaps get identified.
Details: The AGM is a formality, where the office bearers will be appointed
and the auditor's report will be received. Proxy forms are available
upon request. It will be followed by a short planning meeting.
Come with ideas and feedback.
Contact: Register with Helen Schwencke 07 3844 6677
-
- When:** Australia Day long weekend
What: Visit butterfly habitats on Stanley and Mooloolo Rivers
Where: Accommodation at Beerwah Field Study Centre
Contact: Register with John Moss 3245 2997
Details: See elsewhere in newsletter or contact John
-
- When:** Saturday, 14th February, 1998 from 2 pm
What: Excursion to Mt. Glorious Biological Centre, Mt. Glorious Road,
Mt Glorious, followed by a BBQ and light trapping at Jolly's
Lookout. We hope to find some interesting insects in or near
rainforest.
Contact: Register with Helen Schwencke 07 3844 6677
-

If there is a particular speaker you wish to hear or a particular event you wish to attend, it would be wise to phone the contact for that event in case, for some unforeseen circumstance, the event has had to be postponed or cancelled.



MEMBERSHIP FORM

Name: _____

Address: _____

Suburb/ Town _____ State: _____ Postcode: _____

Phone: _____ Fax: _____ Email: _____

If you are employed in a relevant occupation, or have a specific area of expertise,
please specify the occupation and organisation: _____

If you have are subscribing on behalf of a School, please specify which School:

If you have a specific area of interest, please specify: _____

I have enclosed a cheque / money order for -- please specify which membership /
subscription type:

\$10.00 Individual / School

\$15 Family

made payable to **Butterfly and Other Invertebrates Club Inc.**



ACKNOWLEDGMENTS

Producing this newsletter is done due to the efforts of:

- Those who sent in letters and articles
- Lois Hughes who provided illustrations
- Daphne Bowden who works on layout, production and distribution
- Steve McGoldrick who works on production and layout
- Georgina John who works on editorial content and helps with design
- Helen Schwencke who developed the overall design and works on content
- Lois Hughes who developed the cover design
- Frank Jordan for inspiration

We would like to thank all these people for their contribution

ARE YOU A MEMBER

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible.

Butterfly and Other Invertebrates Club Inc.
c/- PO Box 2041
Runcorn Q 4113

NEXT MEETING:

Monday, 12th January, 1998 - Queensland Museum Auditorium

